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EXAMINER

COE, SUSAN D

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

At the request of the BPAI, an English translation of JP 1-139515 has been obtained and is enclosed herewith.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Coe whose telephone number is (571) 272-0963. The examiner can normally be reached on Monday to Thursday from 8:00 to 5:30 and on alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce Campell, can be reached on (571) 272-0974. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1600.

Susan D. Coe, Examiner
September 15, 2004

PTO 04-5320

Japanese Kokai Patent Application
No. Hei 1[1989]-139515

COMPOSITION THAT REPELS DOGS, CATS, AND BIRDS

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UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C.

SEPTEMBER 2004

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COMPOSITION THAT REPELS DOGS, CATS, AND BIRDS

[Inu, neko, oyobi torirui no kihi soseibutsu]

Inventor:	Toshiyuki Sasaki
Applicant:	Fumakiller K.K.

[There are no amendments to this patent.]

Claims

/1*

1. Composition that dogs, cats, and birds which has a plant powder that contains a piquant spice and/or a plant powder that contains an aromatic spice as an effective component.
2. The repellent composition described in Claim 1, in which the piquant spice is pepper, cayenne pepper, Japanese pepper, mustard, horseradish, onion, garlic, ginger, turmeric, cinnamon, allspice, and cardamom.
3. The repellent composition described in Claim 1, in which the aromatic spice is clove, thyme, peppermint, beefsteak plant, sage, laurel, nutmeg, vanilla, fennel, coriander, cumin, and Japanese pepper.

* [Numbers in the right margin indicate pagination of the original foreign text.]

4. The repellent composition described in any one of Claims 1 through 3 that is furthermore mixed together with an repelling fragrance.

5. The repellent composition described in Claim 4, in which the repelling fragrance is D-limonene, orange oil, L-nonyllactone, citral, blue grass alcohol, blue grass aldehyde, cinnamic alcohol, cinnamic aldehyde, and menthol.

Detailed explanation of the invention

Industrial application field

This invention concerns an excellent repellent composition that has an excellent repelling effect with all dogs, cats, and birds and also has an excellent duration.

Prior art

Damage caused by dogs, cats, and birds has become an issue in recent years. For example, dogs and cats often chew plastic and paper bags that contain leftover food and garbage taken out from each house at a garbage collecting spot and the leftover food and garbage are scattered on the streets before the garbage truck collects them. Also, the number of biting incidents by stray dogs, damage from feces of birds on building tops and houses in cities, etc., damage from feces of dogs and cats in locations that are not desirable for public sanitation and locations that are inconvenient for others, etc., and missing plants damage caused by birds damages, for example, has increased, and chemicals that can effectively prevent various types of damage by dogs, cats, and birds have been in demand. /2

Because of the circumstances above, various types of agents that repel dogs, cats, and birds and wrapping materials that are coated or impregnated with them have been conventionally proposed. For example, Japanese Kokai Patent Application No. Sho 57[1982]-74158 proposes a wrapping material that contains an agent that repels dogs and cats with lemongrass oil as the main component coated and impregnated at the side of polyolefin laminated paper. Japanese Kokai Patent Application No. Sho 59[1984]-199465 describes a polyethylene bag that is mixed together and processed with a material that repels dogs, such as arylisothiocyanate (the main component of mustard oil), L-nonyllactone, and citral (a component in the oil from the skin of citrus fruit), etc., at the time of molding of the polyethylene film. Japanese Kokai Patent Application No. Sho 60[1985]-142903 also describes an agent that repels dogs and cats which has diethyltoluamide and menthol as the main components. Japanese Kokai Patent Application No. Sho 61[1986]-289003 furthermore describes a composition that repels dogs, cats, and birds in which a ketene is mixed together with blue grass alcohol, blue grass aldehyde, cinnamic alcohol, or cinnamic aldehyde.

Problems to be solved by the invention

Each of the aforementioned conventional repelling agents has an extracted oil from a plant as the main component or is partially composed of a compound synthesized from it. However, when an extracted oil from a plant is used as an effective component, the repelling effect is often either for dogs or cats, for example, when they are targeted, and there is almost none that has an obvious effect on both. When using fragrances as useful components of the repelling agent, the duration of the effect is an issue. Especially in summer, there is an issue of a quick volatilization that resulted in a short duration time of the effect.

Furthermore, when treated with conventional agents that have been distributed on the market, there is an issue of not gaining an actual effect because of a weak repelling effect when dogs and cats eat leftover food and garbage in areas other than where the agent has adhered.

Accordingly, the purpose of this invention is to offer a composition that repels dogs, cats, and birds which has a repelling effect with all dogs, cats, and birds, and the repelling effect can extend to a relatively wide range and can last for a relatively long period of time.

Means to solve the problems

The composition of this invention which repels dogs, cats, and birds for attaining the aforementioned purpose has a characteristic of having a plant powder that contains a piquant spice and/or a plant powder that contains an aromatic spice as the effective component. Furthermore, the repelling effect can also be increased by having repelling fragrance mixed in.

Operation and form of the invention

As a result of the testing conducted with many chemicals, the inventor of this invention has discovered that pepper, horseradish, and cayenne pepper, for example, that have been known as spices for a long time have a repelling effect on dogs, cats, and birds, and this invention has been completed.

Piquant spices and aromatic spices, such as pepper, cayenne pepper, horseradish, clove, laurel, and Japanese pepper, for example, are used in cooking, and they are also used as agents for preventing the erroneous eating of insecticides because they are difficult for people to eat because of their bitterness. When an alcohol extract of the aforementioned spice, such as cayenne pepper tincture, for example, is mixed in dog food, for example, it has been shown that dogs and cats can eat it with no problem, although at a high addition rate that humans cannot eat [sic].

When a repelling agent was prepared by utilizing the aforementioned spice in a powder form and processed into dog food, for example, dogs, cats, and pigeons did not eat the dog food for about 1 week, and the repelling effect was observed. The action mechanism that displays such an excellent repelling effect is a compound action of the stimulation of the aforementioned

spice on the sense of smell and the stimulation of the mucous membrane of the nostrils. The repelling effect is displayed by the stimulation on the sense of smell and the mucous membrane of the nostrils, for example; therefore, when an agent in grain form and powder form prepared from the aforementioned spice in a powder form is sprayed over garbage, for example, the entire garbage is not damaged when dogs and cats dig for food instead of only the areas where it has adhered. The range that the effect extends is wide. The aforementioned spice has almost no volatilization; therefore, when compared to the conventional repelling fragrances, the duration of the repelling effect is relatively long.

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Examples of piquant spices include pepper, cayenne pepper, Japanese pepper, mustard, horseradish, garlic, onion, ginger, turmeric, cinnamon, allspice, and cardamom, for example (refer to Great Chemistry Dictionary, Pages 605-606). The effect is high when utilizing powders that are obtained by drying and pulverizing plants that contain these spices.

Examples of aromatic spices include clove, thyme, peppermint, beefsteak plant, sage, laurel, nutmeg, vanilla, Japanese pepper, fennel, coriander, and cumin, for example. The effect of is also high when dried powders of plants that contain these spices are utilized.

Each of the aforementioned spices can be provided to the preparation of food products, and there is no issue of toxicity, for example, and the obtainment is also easy.

Furthermore, it has been confirmed through research by the inventor of this invention that a synergic repelling effect is displayed through the combined use of each of the aforementioned spices with a repelling fragrance, such as D-limonene, for example, that is conventionally known publicly. As mentioned above, the repelling effect is different for dogs and cats when a repelling fragrance, such as D-limonene, for example, is used alone in a powder agent or a grain agent. Therefore, it is difficult to obtain a sufficient repelling effect on both. Also, even if there is an effect, it is limited only to areas that are sprayed. Dogs and cats sometimes eat garbage in areas that have not been sprayed with the chemical. Furthermore, the duration of the effect is about several days and is short because the fragrance is volatile. However, when such a repelling fragrance is combined with a piquant spice or an aromatic spice, or these 3 components are combined together and used, a synergic repelling effect is observed. The repelling effect of 1-2 weeks is displayed with both dogs and cats, and the effect is greatest particularly when all 3 components are mixed together. When a grain agent is prepared and sprayed, the entire garbage is not damaged from digging by dogs and cats, and the same effect is also similarly confirmed with pigeons.

Examples of repelling fragrances include D-limonene, orange oil, L-nonyllactone, citral, blue grass alcohol, blue grass aldehyde, cinnamic alcohol, cinnamic aldehyde, and menthol, for example. They are obtained as extracted oils of plants or also as partially synthesized products. These repelling fragrances are lipid soluble; therefore, they are combined together with

glucuronic acid in the animal's body and discharged, and it is not hazardous when absorbed by dogs and cats, for example.

The repellent composition in this invention that has the aforementioned piquant spices and/or aromatic spices or furthermore with an repelling fragrance as effective components displays a sufficient repelling effect in a very small amount, and it displays the repelling effect for at least 1 week at about 2.5 g to 5.0 g/1m².

Application examples

Application examples and test examples will be indicated below, and this invention will be explained concretely.

Production examples of grain agents:

(1) Production example of the grain agent of a piquant spice

10 g of powdered cayenne pepper are measured, 90 g starch are added afterwards, water is added while mixing them together, and the mixture is kneaded, dried and pulverized, and a grain repelling agent (average particle diameter of 1.0 mm) is obtained.

(2) Production example of the grain agent of an aromatic spice

A grain repelling agent (average particle of 1.0 mm) is obtained in exactly the same manner as above except for using laurel.

(3) Production example of the grain agent of a repelling fragrance

After adding 10% of plaster to cristobalite powder (natural stone that foams through sintering and forms continuous bubbles), water is added while mixing together, and the mixture kneaded, dried and pulverized, and a grain agent (average particle diameter of 1.0 mm) is obtained. 10 parts D-limonene are sprayed to 90 parts of the obtained grain agent to have the oil absorbed, and a grain repelling agent is obtained.

Preparation of the samples:

Sample No. 1

30 parts of the grain laurel agent and 40 parts of the grain D-limonene agent are added to 30 parts of the grain cayenne pepper agent that is obtained in the aforementioned grain agent production example, mixed together, and a mixture is obtained.

Sample No. 2

50 parts of the grain D-limonene agent are added to 50 parts of the grain cayenne pepper agent obtained in the aforementioned grain agent production example, mixed together, and a mixture is obtained.

Sample No. 3

50 parts of the D-limonene grain agent are added to 50 parts of the grain laurel agent obtained in the aforementioned grain agent production example, mixed together, and a mixture is obtained.

Sample No. 4

It is only the grain red pepper agent obtained in the aforementioned grain agent production example.

Sample No. 5

It is only the grain D-limonene agent obtained in the aforementioned grain agent production example.

The repelling effect on dogs, cats, and pigeons was tested using each of the aforementioned repellent compositions.

Example 1

2 stray dogs were borrowed from an animal control office (mix at about 1 year and half), 50 g of dog food were administered to each twice in the morning and evening, for 1 week, and it was confirmed that all the food was eaten.

After 1 day of fasting afterwards, 50 g of dog food were given only in the morning every day, and the repelling agent was tested with each evening meal.

50 g of dog food were placed in a round plastic container with a diameter of 12 m [sic] and height of 5 cm, and 5 g of each of the aforementioned sample Nos. 1-5 were evenly scattered, and the same thing was given every day in the evening, collected in the morning, and the relationship between the time that had passed and the intake amount was investigated.

Table 1 below shows the results.

Table 1: Intake amount of the food provided (unit g)

① 試料 番号	1 ② 日後	3 ③ 日後	5 ④ 日後	7 ⑤ 日後	10 ⑥ 日後	14 ⑦ 日後
	②	③	④	⑤	⑥	⑦
No. 1	0	0	0	0	0	6.5
2	0	0	0	0	11.3	30.8
3	0	0	0	0	17.5	26.1
4	0	0	0	11.1	35.6	8.8
5	0	14.9	85.7	—	—	—

Key: 1 Sample number
2 After 1 day
3 After 3 days
4 After 5 days

- 5 After 7 days
- 6 After 10 days
- 7 After 14 days

As clearly shown in the results above, while the intake of the food that is processed only with the repelling fragrance and the grain D-limonene agent (sample No. 5) started after 3 days, and the repelling effect was short, the intake of the food that is processed with the grain agent that consists of the repellent composition of this invention (sample numbers 1-4) started after a minimum of 1 week, which indicates an excellent repelling effect. The repellent composition consisting 3 components of that include a piquant spice (cayenne pepper), aromatic spice (laurel), and a repelling fragrance in particular indicated a particularly significant repelling effect.

Example 2

2 stray cats were borrowed from an animal control office (mix at about 1 year and half), 30 g of cat food were administered twice in the morning and evening for 1 week, and it was confirmed that all the food was eaten.

After 1 day of fasting afterwards, 30 g of cat food were given only in the morning each day, and the repelling agent was tested with each evening meal.

30 g of cat food were placed in a round plastic container with a diameter of 12 m and height of 5 cm, and 5 g of each of the aforementioned sample Nos. 1-5 were evenly scattered, and the same thing was given every day in the evening, collected in the morning, and the relationship between the time that had passed and the intake amount was investigated.

Table 2 below shows the results.

Table 2: Intake amount of the food provided (unit g)

① 試料 番号	1 ② 日後	3 ③ 日後	5 ④ 日後	7 ⑤ 日後	10 ⑥ 日後	14 ⑦ 日後
№ 1	0	0	0	0	0	0
2	0	0	0	0	0	7.4
3	0	0	0	0	0	11.1
4	0	0	0	0	15.1	16.9
5	0	0	15.7	18.3	—	—

- Key:
- 1 Sample number
 - 2 After 1 day
 - 3 After 3 days
 - 4 After 5 days
 - 5 After 7 days
 - 6 After 10 days

7 After 14 days

As clearly shown in the results above, the repellent composition of this invention also indicated a significant repelling effect with cats as well.

Example 3

2 pigeons were borrowed from an animal control office, 20 g of fine corn grain were administered twice in the morning and evening for 1 week, and it was confirmed that all the food was eaten.

After 1 day of fasting afterwards, 20 g of fine corn grain were given only in the morning each day.

The repelling agent was tested with each evening meal.

20 g of fine corn grain were placed in a round plastic container with a diameter of 10 m and height of 4 cm, and 5 g of each of the aforementioned sample Nos. 1-5 were evenly scattered, and the same thing was given every day in the evening, collected in the morning, and the relationship between the time that had passed and the intake amount was investigated.

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Table 3 below shows the results.

Table 3: Intake amount of the food provided (unit g)

	①	②	③	④	⑤	⑥	⑦
試料 番号	1 日後	3 日後	5 日後	7 日後	10 日後	14 日後	
No. 1	0	0	0	0	0	0	
2	0	0	0	0	0	5.3	
3	0	0	0	0	0	4.4	
4	0	0	0	0	11.5	8.5	
5	0	0	4.4	13.6	-	-	

Keys: 1 Sample number
 2 After 1 day
 3 After 3 days
 4 After 5 days
 5 After 7 days
 6 After 10 days
 7 After 14 days

As clearly shown in the results above, the repellent composition of this invention also indicated the significant repelling effect with pigeons as well.

Example 4

A field in front of a building (house) where stray cats often defecate and urinate was made into 7 test locations each of 1 m square, each grain repelling agent of the aforementioned sample Nos. 1-5 and the grain repelling agent as a product distributed on the market were uniformly scattered at a proportion of 25 g/m² respectively, and the state of the field after a specific period of time was investigated.

3 testing locations were selected and tested.

More precisely, the repeated test in the same location lacks the reliability in the results because stray cats have respective territories. Therefore, different locations were tested.

All of the testing locations where the frequent visit by stray cats in about 1 month was confirmed and actual feces and urine were discovered were selected. Table 4 shows the results.

Table 4: Results of each test section (average)-the presence of feces and urine in each test section after the passage of time-

① 試験番号	② ③ ④ ⑤			
	1 日後	3 日後	5 日後	7 日後
⑩ 試 1	無	無	無	無
2	無	⑥ 無	⑥ 無	⑥ 無
3	⑥ 無	⑥ 無	無	無
4	無	無	⑦ 無	⑦ 無
5	無	⑦ 無	⑧ 無	⑧ 無
⑩ 市販品	無	⑧ 糞尿有り	⑧ 糞尿有り	⑧ 糞尿有り
⑪ 無処理	⑧ 糞尿有り	⑨ 同左	⑨ 同左	⑨ 同左
⑫ 注) 3 箇所共殆ど同一の結果であった。				

- Keys:
- 1 Test number
 - 2 After 1 day
 - 3 After 3 days
 - 4 After 5 days
 - 5 After 7 days
 - 6 None
 - 7 None-Feces and urine were present
 - 8 Feces and urine were present
 - 9 Same as left
 - 10 Product distributed in the market
 - 11 Not processed
 - 12 Note) All 3 locations had almost the same results.

As clearly shown in the results above, the repellent composition of this invention showed a significant repelling effect also with cats through the spraying treatment as well.

Example 5

A field where stray dogs often defecate and urinate was sectioned into a 1-m-square sections and prepared into 7 test locations, each grain repelling agent of the aforementioned samples No2. 1-5 and the grain repelling agent as a product distributed on the market were uniformly scattered at a proportion of 25 g/m² respectively, and the state of the field after a specific period of time was investigated.

3 testing locations were selected and tested.

All of the testing locations where the frequent visit by stray dogs in about 1 month was confirmed and actual feces and urine were discovered were selected. Table 5 shows the results.

Table 5: Results of each test section (average)

①	試験番号	②	③	④	⑤
		1 日後	3 日後	5 日後	7 日後
	No. 1	無	無	⑥ 無	⑥ 無
	2	無	⑥ 無	⑥ 無	糞尿有り
	3	⑥ 無	無	糞尿有り ⑧	糞尿有り ⑦
	4	無	糞尿有り ⑧	糞尿有り ⑦	糞尿有り
⑩	5	無	糞尿有り	糞尿有り	同左
	市販品	無	⑦ 糞尿有り	⑨ 同左	同左 ⑨
⑪	無処理	⑦ 糞尿有り	⑨ 同左	同左	同左
⑫	注) 3箇所共同一の傾向の結果であった。				

- Key:
- 1 Test number
 - 2 After 1 day
 - 3 After 3 days
 - 4 After 5 days
 - 5 After 7 days
 - 6 None
 - 7 Feces and urine were present
 - 8 None- Feces and urine were present
 - 9 Same as left
 - 10 Product distributed on the market
 - 11 Not processed
 - 12 Note) All 3 locations showed a tendency for the same results.

As clearly shown in the results above, the repellent composition of this invention showed a significant repelling effect on dogs through the spraying treatment as well.

Effect of the invention

As noted above, the repellent composition of this invention has a powder of a plant that contains a piquant spice and/or powder of a plant that contains an aromatic spice as effective components. Therefore, it has a repelling effect on all of dogs, cats, and birds. Moreover, the duration of the repelling effect is also relatively long. When a grain agent and a powder agent prepared from the repelling agent of this invention is sprayed over garbage, not only the adhered portions but the entire garbage is not damaged from digging by dogs and cats, unlike the conventional repelling agents, and the range of the extension of that effect is wide. Accordingly, the repelling effect can extend over a wide range and moreover for a long duration when repelling dogs, cats, and birds by spraying the repellent composition of this invention. Furthermore, a significant repelling effect can be displayed in a relatively small amount.

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